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Ethnobotanical Uses of California Pteridophytes by Western American Indians

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Utilization of pteridophytes by Western American aborigines played a minor but very interesting role in their lives. Most of the pertinent information is scattered. This paper attempts to summarize much of this information.

The species known to have been used by the western North American Indians north of Mexico are discussed below. The botanical nomenclature is according to Munz (1959).

LYCOPODIUM CLAVATUM L. Club-moss. Although there is no evidence for use of this species by western Indians, Frye (1934) reported its spores were collected for dusting on open raw wounds and chafed infants. The spores are very fine and light, which enables them to repel water and prevent stickiness. *Lycopodium selago* L., a related species in the northwest was used by Indians as an intoxicant. The stem was chewed and the juice swallowed. It is said that three plants produced a mild intoxication whereas eight plants stupified the user.

EQUISETUM ARVENSE L. Common horsetail. The major use of the horsetails was as an abrasive in polishing bows and arrows (Murphey, 1959). However, it was sometimes dried and burned and the ashes used on sore mouths. The Lower Chinook Indians

of Washington gathered, peeled and ate raw the stems of early reproductive shoots (Gunther, 1945).

EQUISETUM HYEMALE L. var. ROBUSTUM (A. Br.) A. A. Eat. Medical uses of this plant included treatment of the prostate gland with infusions made from dried material taken orally (Romero, 1954). Washington Indians boiled the stems and washed their hair to get rid of vermin. Infusions of boiled stems and willow leaves were given to girls to regulate the menstrual period. The Makah ate the reproductive shoot heads for diarrhoea and used the root juice as an eye wash (Gunther, 1945). Karok Indians used the stalk as an abrasive to sharpen the edge of mussel shells used in cleaning fish and to polish arrows. Schenck & Gifford (1952) reported that infusions were used to cleanse priests in the Karok's First Salmon Ceremony.

EQUISETUM KANSANUM Schaffn. Hot infusions were drunk for backaches. Cold infusions were used as a lotion. This species was also used in the Waterway Ceremony of the Kayenta Navajo.

EQUISETUM LAEVIGATUM A. Br. Hopi Indians dried and ground stems and mixed this with corn meal to make a mush used for food and in preparing ceremonial bread (Castetter, 1935).

EQUISETUM TELMATEIA Ehrh. Giant horsetail. Portions of the root stalk were cooked and eaten by the Cowlitz Indians of Washington. Stems were also used for polishing and scouring and as fodder for horses.

ADIANTUM CAPILLUS-VENERIS L. Venus-hair fern. Kayenta Navajo used infusions as treatment for bumblebee stings and centipede bites, and for insanity. It was also smoked in the Lifeway Ceremony. Romero (1954) reported some California Indians used this species in treating menstrual irregularities.

ADIANTUM JORDANII C. Muell. California maidenhair. The most interesting use for any fern is that which Chesnut (1902) reports for this species. The Indians of Mendocino County valued the smooth black midribs for keeping and enlarging ear-ring holes.

ADIANTUM PEDATUM L. var. ALEUTICUM Rupr. Five-finger

fern. Despite its wide distribution this plant was only limitedly used. Its black shiny midrib coverings were a main component for making designs on baskets by many tribes (Balls, 1962; Merrill, 1923). Washington Indians soaked the fronds and used the infusions on the hair. The fronds were chewed for sore chest and stomach trouble and to stop bleeding from wounds. For the latter reason it was sometimes carried with war parties. Ashes of the fronds were rubbed on the hair to produce shiny black braids. Schenck & Gifford (1952) reported that the fern was used for decoration in the Jump Dance dress of the Karok Indians.

PELLAEA MUCRONATA (D. C. Eat.) D. C. Eat. Bird's-foot fern. Infusions of the frond were drunk as a tea for both medical and pleasurable reasons by the Luiseno Indians (Sparkman, 1908). The Minok used the tea to stop nose-bleeds and to purify the blood (Barrett & Gifford, 1933).

PELLAEA sp. (P. ATROPURPUREA in Romero, 1954). When steeped this fern produced a delicious ephedra-like tea to flush the kidneys and tone the blood. In summer it was used to prevent sunstroke.

PITYROGRAMMA TRIANGULARIS (Kaulf.) Maxon. Gold-back fern. This species was chewed by the Minoks for treating toothaches. It was also applied in mitigating the afterpains of childbirth by the Karok. Sometimes its midribs were substituted for those of the maidenhair fern in basketry. Chestnut (1902) reported that the fronds were slapped on clothing by children to make temporary gold colored prints. [This practice is *still* followed by white children!—Ed.]

PTERIDIUM AQUILINUM (L.) Kuhn var. LANUGINOSUM (Bong.) Fern. Brake or Bracken fern. The bracken fern was perhaps the most widely used fern in California. In basketry untreated roots provided the only brown coloring for designs (Merriam, 1955). Frequently these were blackened by heating in water, the degree of coloring depending on the length and temperature of the hot-water treatment. The Karok cleaned salmon on beds of the fern and used the fronds for wrapping tobacco. Some

California tribes cut and cooked the young sprouts to obtain a rich flavored oil and starch. Wittrock & Wittrock (1942) reported that rhizomes were used by many tribes as an important food. The white heart was roasted until it resembled the dough of wheat. This was relished as a nutritious but pungent foodstuff. Young sprouting shoots were also used in preparing soup, or were eaten raw (Yanovsky, 1936). Baked rhizomes could be stored for later use. The Quinault Indians of Washington were said to have used the fibers of the rhizome for making string (Gunther, 1945). They also made a fern-paste bread from the pulp. The Indians of Mendocino County used the large fronds for beating down grass fires and lining berry baskets (Chestnut, 1902). It was also used as a diuretic for horses.

ATHYRIUM FILIX-FEMINA (L.) Roth. var. SITCHENSE Rupr. Lady-fern. Roasted rhizome centers, roots, and new shoots were eaten by Washington Indians. The fronds were also used to wipe fish after cleaning. Boiling rhizomes produced a tea which was drunk to ease body pains. Boiled stem infusions were taken to ease labor pains.

DRYOPTERIS DILATATA (Hoffm.) Gray. Wood-fern. Pounded roots of this species were applied to cuts and frond infusions were used as a hair wash. The rhizomes were sometimes baked and eaten.

DRYOPTERIS FILIX-MAS (L.) Schott. Male-fern. The only recorded use for this fern is as a vermifuge (Wittrock, 1942).

POLYSTICHUM MUNITUM (Kaulf.) Presl. Sword-fern. Rhizomes were peeled and baked in pits with salmon eggs and eaten. The fronds were sometimes used to line the baking pits or to serve as racks for drying berries. The Quilente and Cowlitz Indians made mattresses from them. Medicinally, the young curled fronds were chewed raw and swallowed for sore throats or tonsilitis or to facilitate childbirth. Infusions of the frond were sometimes placed on sores and boils. Boiled rhizome infusion was said to cure dandruff. The sporangia were put on burns.

Sword fern fronds were used in a game to determine long

wind. Leaflets were touched or torn off beginning at the bottom of the frond and certain words were spoken for each. The winner was the one who reached the highest point on the frond in one breath (Schenck & Gifford, 1852).

BLECHNUM SPICANT (L.) With. Deer-fern. Fronds were only used in case of emergency by lost children or to prevent thirst on long journeys. Infusions of the leaves were drunk for general ill health. Green fronds were eaten for lung trouble, stomach distress, and colic.

WOODWARDIA FIMBRIATA Sm. in Rees. Chain fern. Root fibers were used in basket designs either naturally colored or dyed red. The Luiseno Indians used infusions from the roots to relieve pain from injuries. In basketry the midrib of the frond contained two fibers which were stripped and handled like lengths of yarn. Sometimes they were dyed with alder bark or with moss to a burnt orange.

POLYPODIUM CALIFORNICUM Kaulf. California Polypody. Chesnut (1902) reported that juice of the rhizome was rubbed on sores for healing and on the body to treat rheumatism. Root extracts were sometimes used as an eyewash.

POLYPODIUM GLYCYRRHIZA D. C. Eaton. Licorice fern. The rhizome of this plant was roasted and chewed as treatment for coughs. The Cowlitz crushed and boiled the rhizome and mixed it with fir needles to treat measles.

DENNSTAEDTIA PUNCTILOBULA (Michx.) Moore. Romero (1954) erroneously reported this eastern fern from the mountains of California. Its only use was in treating tuberculosis and other lung diseases by drinking oil extracts from the root. The identity of this plant is unknown but it is not the species above.

Of the almost 85 species of ferns and fern allies occurring in California less than one-fourth are known to have been utilized by western American Indians. Upon close examination of the species discussed in this paper, most are found to be restricted in range to the cismontane and other mesophytic regions of the coastal and southwestern states. However, the majority of

Indian tribes covered in this study inhabit these regions.

Uses of ferns by desert tribes has been restricted to a few of the many species occurring in their region. The Hopi Indians of north central Arizona, for example, used only *Asplenium trichomanes* and *Equisetum laevigatum* (Whiting, 1939). Elmore (1944) found no pteridophytes being used by the Navajo, although they did have a name for *Cheilanthes feei.* Wyman & Harris (1951) reported two ferns used by the Kayenta Navajo.

By contrast, Indians of more mesophytic regions made more varied use of a greater number of ferns. Schenck & Gifford (1952) listed eight species used by the Karok of Humboldt County. Chesnut (1902) said six species were utilized by Mendocino County Indians and Gunther (1945) found ten species being used by Indians of western Washington.

None of the species listed was a major constituent of a tribe's sustenance except perhaps *Pteridium aquilinum* var. *lanuginosum* which was valued as food and for less important uses. Although a few of the remaining species were important in a utilitarian manner most of them were luxuries.

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Phytogeography of Selaginella douglasii

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This western North American species has a restricted geographical distribution, being known with certainty only in Washington, Oregon, and Idaho. From time to time it has been attributed to both California and British Columbia, but there seems to be no available evidence that it has ever been found in either of those places. My attention was drawn to this matter by the critical monographic work of Alston (1955), who pointed to certain ambiguities in statements dealing with its geographical range.

According to the classification of Alston & Walton (1938) *Selaginella douglasii* belongs in the subgenus *Stachygynandrum*,